

ELECTRICAL LEGEND:

- SURFACE MOUNTED FLUORESCENT LIGHTING FIXTURE
- LUMINAIRE, WALL MOUNTED, COMPACT FLUORESCENT PHOENIX LIGHTING #VP-W-18CFL-120-PPC-G-BLK OR EQUAL
- CIRCUIT HOME RUN TO PLANE BOARD
NUMERAL - DENOTES CIRCUIT NUMBER
ARROWS - INDICATES QUANTITY OF CIRCUIT CONTAINED IN A HOME RUN TO PANELBOARD
- HEAVY SOLID LINE
DENOTES EXPOSED EQUIPMENT, CONDUITS, CABLES, ETC. SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR
- HEAVY DASHED LINE
DENOTES EMBEDDED EQUIPMENT, CONDUITS, CABLES, ETC. IN FLOOR OR EARTH FURNISHED AND INSTALLED BY CONTRACTOR
- THIN SOLID LINE
DENOTES EXISTING EQUIPMENT, CONDUITS, CABLES, ETC. TO REMAIN
- THIN DASHED LINE
DENOTES EXISTING EQUIPMENT, CONDUITS, CABLES, ETC. TO BE REMOVED
- WALL MOUNTED RECEPTACLE OUTLET - 20A, 125V, 2P, 3W, DUPLEX GROUNDING TYPE, NEMA 5-15R - MOUNTED 18" AFF U.O.N.
- WALL MOUNTED RECEPTACLE WITH GROUND FAULT INTERRUPTER
- WALL MOUNTED VOICE OUTLET MOUNTED 5'-0" AFF
- CONTACT - NORMALLY OPEN
- CONTACT - NORMALLY CLOSED
- MANUAL MOTOR STARTER WITH THERMAL OVERLOAD (FRACTIONAL MOTOR)
- LIGHT SWITCH - 20A, 120/277V, SINGLE POLE - MOUNTED 54" AFF
- CEILING MOUNTED JUNCTION BOX
- WALL MOUNTED JUNCTION BOX
- FUSED SWITCH
- AUTOMATIC CIRCUIT BREAKER
- EXISTING PANELBOARD 480/277V, 3-PH, 4W TYPE AS SCHEDULED
- EXISTING PANELBOARD 208/120V, 3-PH, 4W TYPE AS SCHEDULED
- PANELBOARD 208/120V, 3-PH, 4W TYPE AS SCHEDULED
- EXISTING COMMUNICATION OR SIGNAL CABINET TO REMAIN IN PLACE
- TRANSFORMER
- DISCONNECT SWITCH
A - DENOTES SWITCH SIZE
B - DENOTES NO. OF POLES
C - DENOTES FUSE SIZE; NF - NON-FUSIBLE
D - DENOTES VOLTAGE RATING
- SHUNT TRIP DISCONNECT SWITCH
A - DENOTES SWITCH SIZE
B - DENOTES NO. OF POLES
C - DENOTES FUSE SIZE; NF - NON-FUSIBLE
D - DENOTES VOLTAGE RATING
- MOTOR CONTROLLER - FURNISHED WITH THE EQUIPMENT UNLESS OTHERWISE NOTED
- ELECTRIC MOTOR
NUMBER - INDICATES HORSEPOWER RATING
- SMOKE DETECTOR
- FIRE ALARM CONTROL PANEL
- FIRE ALARM SUB-CONTROL PANEL
- THERMOSTAT
- PULL BOX

ELECTRICAL LEGEND CONT.:

- STEP-DOWN TRANSFORMER
- CONTROL MODULE
- COMB HEATER

DRAWING CONVENTIONS:

- SECTION (S) OR ELEVATION (E) VIEW INDICATOR
- SECTION OR ELEVATION VIEW IDENTIFICATION
- DRAWING NUMBER WHERE VIEW APPEARS.
- DETAIL (D) VIEW INDICATOR
- DETAIL VIEW IDENTIFICATION
- DRAWING NUMBER WHERE VIEW APPEARS.
- SECTION (S), ELEVATION (E), OR DETAIL (D), VIEW INDICATOR
- SECTION, ELEVATION, OR DETAIL VIEW IDENTIFICATION.
- SECTION, ELEVATION, OR DETAIL TITLE
- DRAWING NUMBER WHERE VIEW IS TAKEN

ABBREVIATIONS:

- | | | | |
|------------|------------------------------------|--------|------------------------|
| A | AMPERE | MTR | MOTOR |
| AC | AIR CONDITIONING | MIN | MINIMUM |
| AFF | ABOVE FINISHED FLOOR | MLO | MAIN LUGS ONLY |
| C | CONDUIT | MTD | MOUNTED |
| CIR. | CIRCUIT | NC | NORMALLY CLOSED |
| CKT. BRKR. | CIRCUIT BREAKER | NIC | NOT IN CONTRACT |
| DWG | DRAWING | NL | NIGHT LIGHT |
| EC | EMPTY CONDUIT | NO | NORMALLY OPEN |
| ECR | ESCALATOR CONTROL ROOM | NTS | NOT TO SCALE |
| EF | EXHAUST FAN | OL | OVERLOAD |
| EH | ELECTRIC HEATER | P | PUMPS, POLE |
| ELEC | ELECTRIC | PH | PHASE |
| EM | EMERGENCY | RGS | RIGID GALVANIZED STEEL |
| ESC | ESCALATOR | T.O.P. | TOP OF PIPE |
| EWB | ELECTRIC WATER HEATER | TYP | TYPICAL |
| FBO | FURNISHED BY OTHERS | UH | UNIT HEATER |
| FCU | FAN COIL UNIT | U.O.N | UNLESS OTHERWISE NOTED |
| FLUO | FLUORESCENT | V | VOLT |
| GRD | GROUND | W | WIRE |
| GFI | GROUND FAULT INTERRUPTER | WP | WEATHERPROOF |
| IG | ISOLATED GROUND | WS | WORKSTATION |
| INC | INCANDESCENT | | |
| KAIC | KILO-AMPERES INTERRUPTING CAPACITY | | |
| L | LOUVER | | |

GENERAL NOTES:

- ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, NATIONAL SAFETY CODE, NFPA, OSHA REGULATIONS AND REGULATIONS OF AUTHORITIES WHICH WOULD APPLY IF THE PORT AUTHORITY TRANS-HUDSON CORP WERE A PRIVATE CORPORATION.
- THE CONTRACT DRAWINGS ARE DIAGRAMMATIC IN NATURE AND NOT EVERY DETAIL OR EXACT LOCATION OF EQUIPMENT AND/OR CONDUIT IS SHOWN. EXISTING CONDITIONS SHALL BE VERIFIED IN THE FIELD BEFORE COMMENCING ANY FABRICATION, ORDERING ANY MATERIAL, OR PERFORMING ANY WORK. THE EXACT LOCATION OF THE EQUIPMENT AND EXACT ROUTING OF CONDUIT SHALL BE DETERMINED IN THE FIELD. CABLE LENGTH SHALL BE DETERMINED AFTER ALL PULL CONDUITS HAVE BEEN INSTALLED. ANY DEPARTURE FROM CONCEPT SHOWN ON THE CONTRACT DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
- WHERE TERMINOLOGY EXISTING TO BE REMOVED, OR EXISTING SHALL BE REMOVED OR SIMILAR TERMINOLOGY IS USED ON THE CONTRACT DRAWINGS, IT SHALL BE CONSTRUED TO MEAN REMOVED BY THE CONTRACTOR.
- ALL CONDUITS, FITTINGS, AND SUPPORT STRUCTURES SHALL BE RIGID GALVANIZED STEEL UNLESS OTHERWISE NOTED. MINIMUM SIZE OF CONDUITS SHALL BE 3/4". THE USE OF SPLIT COUPLINGS IS NOT PERMITTED. RUNS FOR LIGHTING AND CONVENIENCE OUTLETS SHALL BE 2-1/2" THWN AND 1-1/2" THWN GROUND IN 3/4" U.O.N.
- ALL CONDUITS SHALL CONTAIN AN INSULATED GROUND WIRE BONDED TO ALL ENCLOSURES AND SIZED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NEC OR AS SHOWN ON THE CONTRACT DRAWINGS.
- PRIOR TO INSTALLATION, SUBMIT TO THE ENGINEER FOR APPROVAL, DIMENSIONED INSTALLATION LAYOUTS. ALL WORK SHALL BE COORDINATED WITH THE LOCATIONS IN FIELD TO CLEAR ALL INTERFERENCES.
- CONDUIT SHALL BE CUT TO THE PROPER LENGTH SO THAT THE ENDS WILL FIT EXACTLY INTO THE OUTLET BOXES AND CABINET. WHERE CONDUIT TERMINATES IN CABINET, IT SHALL BE NEATLY ARRANGED AND ALL ENDS SHALL BE AT THE SAME LEVEL. THE ENDS OF ALL CONDUIT SHALL BE CAREFULLY PLUGGED WITH A BUSHETTE SO AS TO AVOID THE FILLING WITH PLASTER, DUST, ETC.; THE ENDS OF THE CONDUIT AT MOTORS, MOTOR STARTING BOXES AND SIMILAR APPARATUS AND DEVICES SHALL BE FURNISHED WITH SUITABLE CONDUIT FITTINGS AS REQUIRED IN EACH CASE.
- PULL BOXES SHALL BE SIZED AND INSTALLED AS SHOWN ON THE CONTRACT DRAWINGS AND/OR AS REQUIRED BY THE NEC. PROVIDE PULL BOXES OR PULLING TYPE CONDUITS AS REQUIRED TO CONFORM TO NEC.
- ALL CONDUITS IN FINISHED AREAS SHALL BE CONCEALED. ALL CONDUITS SHALL BE SECURELY FASTENED IN PLACE BY AN APPROVED MEANS OF SUPPORT AND FASTENERS. THREADED FITTINGS SHALL BE OF TYPES ADAPTABLE TO THE PARTICULAR LOCATION. CONDUITS FASTENED TO MASONRY, GLAZED BRICK WALLS, OR CONCRETE SHALL USE MALLEABLE CONDUIT CLIPS WITH SCREWS AND SUITABLE EXPANSION SLEEVES.
- PERFORM ALL CUTTING, DRILLING AND CORE DRILLING AS NECESSARY TO PROVIDE PENETRATIONS THROUGH WALLS AND FLOORS FOR ELECTRICAL INSTALLATION WORK. CORE DRILL DIAMETER SHALL NOT BE MORE THAN 25% LARGER THAN THE CONDUIT OUTSIDE DIAMETER. ALL CONDUITS PENETRATING WALLS AND FLOORS SHALL BE INSTALLED IN A GALVANIZED STEEL SLEEVE WITH FLOOR SUPPORTS, PATCH AND RESTORE SURROUNDING AREA OF PENETRATIONS TO ITS ORIGINAL CONDITION TO THE SATISFACTION OF THE ENGINEER. OPENINGS THROUGH SLAB AND WALLS FOR CONDUITS SHALL BE FIRE STOPPED IN AN APPROVED MANNER UTILIZING "3M" CO. FIRE SEALING SYSTEM #7804 SERIES OR APPROVED EQUAL.
- ALL UNUSED WALL OR FLOOR PENETRATIONS FROM THE REMOVAL OF ELECTRICAL EQUIPMENT SHALL BE SEALED WITH AN APPROVED FIRE RATED MATERIAL TO MATCH EXISTING CONDITIONS TO THE SATISFACTION OF THE ENGINEER.
- FLEXIBLE METAL CONDUIT INCORPORATING A SEPARATE INSULATED GROUND CONDUCTOR SHALL BE PERMITTED ONLY FOR FINAL CONNECTION TO LIGHTING FIXTURES AND FRACTIONAL HORSEPOWER MOTOR CONNECTIONS. ALL FITTINGS USED WITH FLEXIBLE METAL CONDUIT SHALL BE THE CONCENTRIC COMPRESSION "TITE-BITE" TYPE WITH THREADED LOCKNUT TYPE FITTINGS USED ALL EQUIPMENT AND OUTLET BOX CONNECTION POINTS.
- ALL BOXES SHALL BE CLEARLY MARKED WITH RESPECTIVE VOLTAGE SERVICE.
- FURNISH AND INSTALL "BAKE-LITE" TAGS FOR CONDUITS, CABLE TRAYS AND CABLES THAT ARE INSTALLED UNDER THIS CONTRACT. TAG IDENTIFICATIONS SHALL BE IN ACCORDANCE WITH CONTRACT DRAWINGS OR AS DIRECTED BY THE ENGINEER. TAGS FOR CONDUITS, CABLE TRAYS AND MULTICONDUCTOR CABLES SHALL BE AS DESCRIBED IN SPEC. SECTION 18120, PAR. 2.02 1 & 2. TAGS FOR SINGLE CONDUCTOR CABLES AND INDIVIDUAL CONDUCTORS OF A MULTI-CONDUCTOR CABLE SLEEVE TYPE, HEAT CABLE SHALL BE NON HEAT SHRINKABLE PREPRINTED MARKERS, THOMAS & BETTS WHT-700, WL-200 OR APPROVED EQUAL.
- OBSERVE CABLE BENDING RADIUS IN EVERY ANGLE PULLS INSIDE THE PULL BOXES WHEN INSTALLING CABLES.
- THE POWER LEADS TO ALL MOTORS SHALL BE IN CONDUIT. WHERE MOTORS HAVE CONDUIT TERMINAL BOXES, THE FEEDER CONDUIT SHALL NOT BE CONNECTED DIRECTLY INTO SAME. PROVIDE A FLEXIBLE CONDUIT CONNECTION BETWEEN CONDUIT AND MOTOR TERMINAL BOX. FLEXIBLE CONDUIT SHALL BE LONG ENOUGH (BUT IN NO CASE GREATER THAN 18 INCHES LONG) AND OF SUITABLE ARRANGEMENT TO ACHIEVE A TRUE FLEXIBLE CONNECTION BETWEEN THE MOTOR AND CONDUIT.
- MOUNTING HEIGHTS OF ELECTRICAL EQUIPMENT AND DEVICES AFF SHALL BE AS FOLLOWS U.O.N.: TOGGLE SWITCH: 4'-6", RECEPTACLE: 18", MOTOR CONTROLLERS: 4'-0" (TOP), PANELS T.O.P.: 6'-6".
- FURNISH AND INSTALL CONDUIT FITTINGS, CONDUITS, CONNECTORS, CLAMPS, HARDWARE, HANGERS, SUPPORTS, ETC. NECESSARY FOR A COMPLETE INSTALLATION.
- PRIOR TO DRILLING THROUGH FLOORS AND WALLS, CHECK FOR EXISTING CONDUITS/PIPES IN FLOOR SLABS AND WALLS. NO DRILLING WORK SHALL BE PERFORMED WITHOUT ENGINEER'S APPROVAL.
- ALL EQUIPMENT AND MATERIALS SHALL BE FACTORY TESTED FOR PERFORMANCE AND ALSO FIELD TESTED AFTER INSTALLATIONS IN ACCORDANCE WITH SPECIFICATION, MANUFACTURER'S RECOMMENDATIONS, APPLICABLE STANDARDS AND AS DIRECTED BY THE ENGINEER TO DEMONSTRATE PROPER OPERATIONAL AND FUNCTIONAL PERFORMANCE.
- DISCONNECTIONS AND INTERRUPTIONS OF ELECTRICAL SERVICE, COMMUNICATIONS AND SUPERVISORY SYSTEMS SHALL BE SCHEDULED AND APPROVED BY THE ENGINEER.
- LIMIT OF CONSTRUCTION IS DEFINED AS REPLACEMENT OF EXISTING CONDUIT THAT WILL BE EXPOSED OR REMOVED TO ALLOW THE INSTALLATION OF ESCALATOR ELECTRICAL PANEL AND EQUIPMENT.
- ENGAGE THE SERVICES OF AFA PROTECTIVE SYSTEMS INCORPORATED, 961 JOYCE KILMER AVE. NEW BRUNSWICK, NJ 08902 (732) 846-4000, ATTN: MRS. FRANCIS LOMBARDI FOR ALL WORK ON ESCALATOR INTEGRATION INTO EXISTING FIRE SYSTEM. NO SUBSTITUTION PERMITTED.
- ENGAGE THE SERVICES OF CETEK, 19284, 252 AVENUE, BETTENDORF, IA, 52722-7350 (563) 650-0855, ATTN: MR. MATTHEW JONES FOR HARDWARE AND SERVICES TO INTEGRATE 10 ESCALATORS INTO THE ERMS SYSTEM AT JOURNAL SQUARE TRANSPORTATION CENTER. NO SUBSTITUTION PERMITTED.

LIST OF MANUFACTURERS

SPEC. SECTION	EQUIPMENT	MANUFACTURERS	SPEC. SECTION	EQUIPMENT	MANUFACTURERS
7840	FIRESTOPPING	1. 3M OR APPROVED EQUAL	16133	CONTROL PANELS ENCLOSURES - CABINETS AND TERMINAL BOXES	1. HOFFMAN ENCLOSURE INC OR APPROVED EQUAL
13410	FIBER OPTIC CABLE	1. CORNING OR APPROVED EQUAL	16135	JUNCTION BOXES AND FITTINGS	1. STEEL CITY OR APPROVED EQUAL
14313	ERMS	1. CETEK INC. WITH NO SUBSTITUTION ALLOWED	16140 16330	RELAYS	1. GE OR APPROVED EQUAL
16000	CONNECTORS & FITTINGS	1. THOMAS & BETTS OR APPROVED EQUAL	16470 16330	PANELBOARDS	1. SQUARE D OR APPROVED EQUAL
16110	CONDUIT SYSTEMS	1. ALLIED TUBE OR APPROVED EQUAL 2. PANDUIT OR APPROVED EQUAL	16500	LIGHTING FIXTURES	1. SIMKAR OR APPROVED EQUAL 2. LPID OR APPROVED EQUAL 3. PELA OR APPROVED EQUAL
16120	CONDUCTORS	1. SOUTHWIRE OR APPROVED EQUAL	16720	FIRE SYSTEM	1. AFA PROTECTIVE SYSTEMS WITH NO SUBSTITUTION ALLOWED
16127	COMMUNICATION CONDUCTORS	1. ALPHA WIRE COMPANY OR APPROVED EQUAL			

1	01/27/09	ADDENDUM NO. 5	GAC
No.	Date	Revision	Approved

ENGINEERING DEPARTMENT

JOURNAL SQUARE TRANSPORTATION CENTER

ELECTRICAL

Title
BUS TERMINAL ESCALATOR REPLACEMENT

ELECTRICAL NOTES, LEGEND AND ABBREVIATIONS

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T.GILLEN A.CONCHADO G.CAMPANELLA
Designed by Drawn by Checked by

Date 11/17/2008

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